

## Patent Abstracts of Japan

PUBLICATION NUMBER : 61234633  
PUBLICATION DATE : 18-10-86

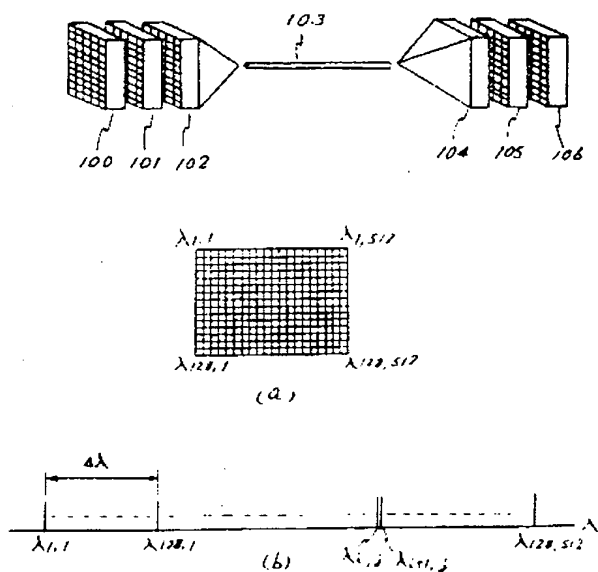
APPLICATION DATE : 10-04-85  
APPLICATION NUMBER : 60075751

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INT.CL. : H04B 9/00 H04N 7/22

TITLE : COMMUNICATION SYSTEM FOR TWO-DIMENSIONAL INFORMATION



ABSTRACT : PURPOSE: To transmit two-dimensional information with a small power consumption by modulating the rays of light having different wavelengths by means of the information of each picture element constituting the two-dimensional information and transmitting the modulated lights through an optical waveguide as wavelength-multiplexed optical signals.

CONSTITUTION: A photodiode array 100 is composed of 512×512 photodiodes arranged in a plane corresponding to the picture elements of two-dimensional picture information and converts two-dimensional picture information into electric signals. The array 100 resolves the information into four sheets of picture information at every 4th line and obtains electric signals of 512×128. The electric signals are optically modulated by 512×128 pieces of laser diodes which are arranged in a plane on a heterodyne modulator array 101 and have wavelengths  $\lambda_{1,1} \sim \lambda_{128,512}$  and sent to an optical fiber 103 after they are multiplexed and combined by a light insertion multiplexing circuit 102. The transmitted signals are demultiplexed by an optical demultiplexing and branching circuit 104 and detected by a heterodyne detector array 105 and then, displayed by means of a light emitting element array 106.

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